Application No. 09/871,823
Amendment dated: July 13, 2004
Reply to Final Action dated May 27, 2004

Amendments to the Claims:

This listing of claims will replace all prior version, and listings, of the claims in the application:

Listing of Claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Currently Amended) A diagnostic card device for performing chemical analysis, comprising

a card housing; and

an electrode module, the electrode module including a carrier module and at least one electrode for contact with a sample fluid and formed directly on the carrier module, the carrier

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module being a laminate of an insulating layer having opposing first and second sides and a metal layer applied to the first side and divided into at least two metal conductor elements, [[and]] the at least one electrode [[being formed directly on the carrier module and]] including a membrane element for imparting chemical sensitivity to the electrode, the membrane element being [[applied to]] on the second side of the insulating layer [[to be]] and in electrical contact with one of the metal conductor elements through the insulating layer, to permit electrical contact and sample fluid contact with the electrode module on the first and second sides of the insulating layer respectively; the electrode module being mounted to the card housing [[for exposing]] to expose the conductor elements for exterior [[access]] electrical contact on the first side of the insulating layer.

10. (Previously Presented) The diagnostic device of claim 9, wherein the housing further comprises an opening to introduce fluid for contact with the at least one electrode.

11. (Original) The diagnostic device of claim 9, wherein the housing further comprises fluidic elements.

12. (Previously Presented) The diagnostic device of claim 10, wherein the housing has a module cavity for receiving the electrode module.

13. (Previously Presented) The diagnostic device of claim 12, wherein the opening is in fluid communication with the module cavity.

14. (Original) The diagnostic device of claim 12, wherein the housing is rigid in proximity to the module cavity.

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15. (Previously Presented) The diagnostic device of claim 12, wherein the electrode module is sealingly mounted to the housing for preventing fluids located in the module cavity flowing around the electrode module to the conductor layer and for exposing the conductor elements to an exterior of the housing.

16. (Previously Presented) The diagnostic device of claim 9, wherein the carrier module is a chip carrier according to ISO standard 7816.

17. (Previously Presented) The diagnostic device of claim 9, wherein the metal layer of the electrode module has at least two metal conductor elements and at least one electrode for each metal conductor element.

18. (Previously Presented) The diagnostic device of claim 9, wherein the metal layer is a metal foil and the insulating layer is an insulator foil.

19. (Previously Presented) The diagnostic device of claim 9, wherein the insulator foil has a perforation over each metal conductor element and the membrane element extends through the perforation for electrical contact with the metal conductor element.

20. (Previously Presented) The diagnostic device of claim 9, wherein the electrode module further includes an electrokinetic conductor for electrokinetic transport of a solute species to the at least one electrode.

21. (Previously Presented) The diagnostic device of claim 9, wherein the metal layer is made of copper.

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22. (Previously Presented) The diagnostic device of claim 9, wherein the metal layer is made of copper coated with films of nickel and gold.

23. (Previously Presented) The diagnostic device of claim 9, wherein the insulating layer is made of an epoxy material.

24. (Previously Presented) The diagnostic device of claim 9, wherein the metal layer is divided into a conductor array consisting of a regular pattern of individual metal conductor elements.

25. (Original) The diagnostic device of claim 19, wherein the perforation is die-cut through the insulator layer.

26. (Original) A diagnostic device for insertion into and electric contact with a connector device for providing an electric connection to a utility electrical device, the diagnostic device comprising

a housing;

an electrode module including a substantially planar carrier module made of a laminate of a metal foil and a perforated insulator foil, which metal foil is divided into at least two metal conductor elements; and at least one electrode formed directly on the carrier module and including a membrane element for imparting chemical sensitivity to the electrode, the membrane element being applied to the insulator foil to be in electrical contact with one of the metal conductor elements through a perforation of the perforated insulator foil;

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the housing having a module cavity for receiving the electrode module and the electrode module being placed in the module cavity with the insulator foil facing the interior of the module cavity, the electrode module being sealed in the housing for preventing fluids located in the module cavity flowing around the electrode module to the conductor layer and for exposing the conductor layer to an exterior of the housing for electric contact with the connector device; and the housing having means for exposing the electrode of the electrode module to a sample fluid.

27. (Original) The device of claim 26, wherein the electrode module is unit-use and the device is a single use disposable device.

28. (Currently Amended) A diagnostic card device for insertion into and electric contact with a connector device for providing an electric connection to a utility electrical device, the diagnostic card device comprising

a card housing; and

an electrode module [[according to claim 1]], the electrode module including a carrier module and at least one electrode for contact with a sample fluid and formed directly on the carrier module, the carrier module being a laminate of an insulating layer having opposing first and second sides and a metal layer applied to the first side and divided into at least two metal conductor elements, the at least one electrode including a membrane element for imparting chemical sensitivity to the electrode, the membrane element being on the second side of the insulating layer and in electrical contact with one of the metal conductor elements through the insulating layer, to permit electrical contact and sample fluid contact with the electrode module

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on the first and second sides of the insulating layer respectively; the electrode module being mounted to the card housing with the second side of the carrier layer facing the card housing, the card housing having means for exposing the membrane element of the electrode module to a sample fluid, and the electrode module being sealingly mounted to the card housing for preventing sample fluid in contact with the membrane element from flowing around the insulating layer to the conductor elements, and [[for exposing]] to expose the conductor elements to an exterior of the housing for exterior electric contact with the connector device on the first side of the insulating layer.

29. (Previously Presented) An electrode module for use in a diagnostic device, comprising

a planar carrier module made of a laminate of an insulating layer having opposing first and second sides and a metal layer divided into at least two metal conductor elements;

at least one electrode formed directly on the carrier module and including a membrane element for imparting chemical sensitivity to the electrode, the membrane element being applied to the second side of the insulating layer to be in electrical contact with one of the metal conductor elements through the insulating layer to permit electrical contact and sample fluid contact with the electrode module on the first and second sides of the insulating layer respectively; and

an electrokinetic conductor for electrokinetic transport of a solute species to the at least one electrode.

30. (Previously Presented) The electrode module as defined in claim 29, wherein the metal layer is a metal foil and the insulator layer is an insulator foil.

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31. (Previously Presented) The electrode module as defined in claim 29, wherein the carrier module is a chip carrier conforming to ISO standard 7816.

32. (Previously Presented) The electrode module as defined in claim 29, wherein the insulating layer has a perforation over each metal conductor element and the membrane element extends through the perforation for electrical contact with the metal conductor element.

33. (Previously Presented) A diagnostic device for performing chemical analysis, comprising a housing; an electrode module according to claim 29 mounted to the housing for exposing the conductor elements to an exterior of the housing; and means in the housing for exposing the membrane element of the electrode module to a sample fluid.

34. (Previously Presented) The diagnostic device of claim 33, wherein the housing further comprises fluidic elements.

35. (Previously Presented) The diagnostic device of claim 33, wherein the housing has a module cavity for receiving the electrode module.

36. (Previously Presented) The diagnostic device of claim 35, wherein the means for exposing is an opening in the housing in fluid communication with the module cavity.

37. (Previously Presented) The diagnostic device of claim 36, wherein the housing is rigid in proximity to the module cavity.

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38. (Previously Presented) The diagnostic device of claim 33, wherein the electrode module is sealingly mounted to the housing for preventing fluids located in the module cavity flowing around the insulating layer to the conductor elements.

39. (Previously Presented) The diagnostic device of claim 33, wherein the carrier module is a chip carrier according to ISO standard 7816.

40. (Previously Presented) The diagnostic device of claim 33, wherein the metal layer of the electrode module has at least two metal conductor elements and the diagnostic device has at least one electrode for each metal conductor element.

41. (Previously Presented) The diagnostic device of claim 33, wherein the insulating layer has a perforation over each metal conductor element and the membrane element extends through the perforation for electrical contact with the metal conductor element.

42. (Previously Presented) The diagnostic device of claim 33, wherein the metal layer is divided into a conductor array consisting of a regular pattern of individual metal conductor elements.

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